

CLAIMS

1. A connecting sheet comprising a multilayer board constructed of plural boards that are laminated, a pair of external connecting terminals being in pressurized contact with two edges of the multilayer board, the multilayer board comprising:

a first high speed transmission line board having a stripline structure, that comprises

a first elastomer sheet that has a fixed dielectric constant;

plural first elastomer strips arrayed at two edges of the first elastomer sheet, that are electrically conductive between front and back surfaces; and

plural first high speed transmission lines connecting two ends of the plural first elastomer strips and being formed in a pattern on the first elastomer sheet; and

a first surface layer board that comprises

a second elastomer sheet that is nonconductive, and

plural second elastomer strips arrayed in association with the plural first elastomer strips, at edges of the second elastomer sheet, being electrically conductive between front and back surfaces.

2. The connecting sheet according to claim 1, wherein the multilayer board is configured by the first surface layer board being laminated on the first high speed transmission line board, the plural second elastomer strips being arrayed in association with the first elastomer strips, at two edges of the second elastomer sheet, on the first surface layer board, the external connecting terminals being in pressurized contact with the plural second elastomer strips formed at two edges of the first surface layer board, and the external connecting terminals and the plural first high speed transmission lines being connected.

3. The connecting sheet according to claim 1, wherein the multilayer board further comprises:

a second surface layer board that comprises a third elastomer sheet that is nonconductive, and

plural third elastomer strips arrayed in association with the plural first elastomer strips, at one edge of the third elastomer sheet, being conductive between front and back surfaces;

the multilayer board is configured with the first high speed transmission line board as a core board, and the first surface layer board and the second surface layer board are laminated opposing each other;

on the first surface layer board the second elastomer strips are arrayed in association with the first elastomer strips, at one edge of the second elastomer sheet;

the second elastomer strips and the third elastomer strips are positioned at two edges of the multilayer board; one of one pair of external connecting terminals is in pressurized contact with the plural second elastomer strips formed at one edge of the first surface layer board;

the other of the external connecting terminals is in pressurized contact with the plural third elastomer strips formed at the other edge of the second surface layer board; and

the external connecting terminals and the plural first high speed transmission lines are connected.

4. The connecting sheet according to claim 1, wherein

the multilayer board further comprises a second surface layer board, a first inner layer board, and a first and a second ground board;

on the first surface layer board the plural second elastomer strips are arrayed in association with the first elastomer strips, at two edges of the second elastomer sheet;

the second surface layer board comprises a third elastomer sheet that is nonconductive, and plural third elastomer strips arrayed in association with the first elastomer strips, at edges of the third elastomer sheet, that are electrically conductive between front and

back surfaces;

the first high speed transmission line board further comprises a first elastomer that forms plural ground layers, arrayed in parallel to the first high speed transmission lines so as to sandwich the first high speed transmission lines, that are electrically conductive between front and back surfaces;

the first inner layer board comprises a fourth elastomer sheet that is nonconductive, plural fourth elastomer strips arrayed in association with the first elastomer strips, at two edges of the fourth elastomer sheet, being electrically conductive between front and back surfaces, and a second elastomer forming plural ground layers, arrayed in association with the first elastomer, being electrically conductive between front and back surfaces;

the ground boards have at least a width in contact with the first elastomer;

the first ground board, the first high speed transmission line board, the first inner layer board, and the second ground board are laminated, in that order, to form an offset stripline structure;

the first surface layer board is additionally laminated on the offset stripline structure to form the multilayer board; and

by the surfaces of the multilayer board being pressed together, an electromagnetic shielding wall is formed between the plural first high speed transmission lines.

5. The connecting sheet according to claim 4, wherein the electromagnetic shielding wall between the plural first high speed transmission lines is formed by respectively joining, with electrically conductive adhesive, the first ground board and the first elastomer on the first high speed transmission line board, the first elastomer and the second elastomer on the first inner layer board, and the second elastomer and the ground boards.

6. The connecting sheet according to claim 3, wherein the first multilayer board further comprises a first inner layer board and a first and a second ground board;

the first high speed board further comprises a first elastomer forming plural ground layers, arrayed in parallel to the first high speed transmission lines so as to sandwich the first high speed transmission lines, being electrically conductive between front and back surfaces;

the first inner layer board comprises a fourth elastomer sheet that is nonconductive, plural fourth elastomer strips arrayed in association with the first elastomer strips at two edges of the fourth elastomer sheet and being electrically conductive between front and back surfaces, and a second elastomer forming plural ground layers arrayed in association with the first elastomer, being electrically conductive between front and back surfaces;

the first and the second ground boards have at least a width in contact with the first elastomer;

the first ground board, the first high speed transmission line board, the first inner layer board, and the second ground board are laminated, in that order, to form an offset stripline structure;

on two surfaces of the offset stripline structure the first surface layer board and the second surface layer board are additionally laminated to form the multilayer board; and

by the surfaces of the multilayer board being pressed together, an electromagnetic shielding wall is formed between the plural first high speed transmission lines.

7. The connecting sheet according to claim 6, wherein the electromagnetic shielding wall between the plural first high speed transmission lines is formed by respectively joining, with electrically conductive adhesive, the first ground board and the first elastomer on the first high speed transmission line board, the first elastomer and the second elastomer on the first inner layer board, and the second elastomer and the second ground board.

8. The connecting sheet according to claim 4 or 5, wherein the multilayer board further includes a second high speed transmission line board having a stripline structure, a second inner layer board, and a third ground board;

first elastomer strip pairs formed of two of the first elastomer strips on the first high speed transmission line board are arrayed at regular intervals at two edges of the first elastomer sheet,

the first high speed transmission lines are connected at regular intervals alternately with the first elastomer strip pairs, between two ends of the first elastomer strips;

the third elastomer strips of the second surface layer board are arrayed in association with the first elastomer strips, at one edge of the third elastomer sheet;

the second high speed transmission line board comprises a fifth elastomer sheet that has a fixed dielectric constant, plural fifth elastomer strips arrayed at intervals overlapping the first elastomer strips, at two edges of the fifth elastomer sheet, and being electrically conductive between front and back surfaces, plural second high speed transmission lines formed in a pattern on the fifth elastomer sheet and connecting two ends of the plural fifth elastomer strips so as to alternate with the plural first high speed transmission lines, and a third elastomer forming plural ground layers, arrayed in parallel to the second high speed transmission lines so as to sandwich the second high speed transmission lines, being electrically conductive between front and back surfaces;

the second inner layer board comprises a sixth elastomer sheet that is nonconductive, plural sixth elastomer strips arrayed in association with the fifth elastomer strips, at two edges of the sixth elastomer sheet, that are electrically conductive between front and back surfaces, and a fourth elastomer forming plural ground layers arrayed in association with the third elastomer, that is electrically conductive between front and back surfaces;

the second surface layer board, the third ground board, the second high speed transmission line board, the second inner layer board, the first ground board, the first high speed transmission line board, the first inner layer board, the second ground board, and the first surface layer board are laminated, in that order, to form the multilayer board having a two-layer offset stripline structure;

the external connecting terminals are in pressurized contact with the plural second

elastomer strips formed at two edges of the first surface layer board in the multilayer board, and the external connecting terminals are connected with the plural first high speed transmission lines and the plural second high speed transmission lines.

9. The connecting sheet according to claim 8, wherein one of the pair of external connecting terminals is in pressurized contact with the plural second elastomer strips formed at one edge of the first surface layer board in the multilayer board, the other of the external connecting terminals is in pressurized contact with the plural third elastomer strips formed at the other edge of the second surface layer board in the multilayer board, and the external connecting terminals are connected with the plural first high speed transmission lines and the plural second high speed transmission lines.

10. The connecting sheet according to claim 8 or claim 9, wherein the electromagnetic shielding wall between the plural second high speed transmission lines is formed by respectively joining, with electrically conductive adhesive, the third ground board and the third elastomer on the second high speed transmission line board, the third elastomer and the fourth elastomer on the second inner layer board, and the fourth elastomer and first ground board.

11. The connecting sheet according to claim 1, wherein the multilayer board further comprises: a second high speed transmission line board having a stripline structure, a first inner layer board, a second inner layer board, a third inner layer board, first, second, third, and fourth ground boards, and a bottom sheet;

the first high speed transmission line board further comprises a first elastomer forming plural ground layers arrayed in parallel to the first high speed transmission lines so as to sandwich the first high speed transmission lines, that are conductive between front and back surfaces;

the first high speed transmission lines connect, as desired, two ends of the first elastomer strips;

on the first surface layer board the second elastomer strips are arrayed in association with the first elastomer strips, at two edges of the second elastomer sheet;

the second high speed transmission line board comprises a fifth elastomer sheet that has a fixed dielectric constant, plural fifth elastomer strips arrayed at two edges of the fifth elastomer sheet, that are conductive between front and back surfaces, plural second high speed transmission lines connecting, as desired, two ends of the plural fifth elastomer strips, and formed in a pattern on the fifth elastomer sheet, and a second elastomer forming plural ground layers arrayed in parallel to the second high speed transmission lines so as to sandwich the second high speed transmission lines, being conductive between front and back surfaces;

the first inner layer board comprises a fourth elastomer sheet that is nonconductive, plural fourth elastomer strips arrayed in association with the first elastomers strips, at two edges of the fourth elastomer sheet, that are conductive between front and back surfaces, and a third elastomer forming plural ground layers arrayed in association with the first elastomer, that are conductive between front and back surfaces;

the second inner layer board comprises a sixth elastomer sheet that is nonconductive, plural sixth elastomer strips arrayed in association with the first elastomer strips at two edges of the sixth elastomer sheet, being conductive between front and back surfaces, and a fourth elastomer forming plural ground layers arrayed in association with the first elastomer, being conductive between front and back surfaces;

the third inner layer board comprises a seventh elastomer 1 that is nonconductive, and plural seventh elastomer strips arrayed in association with the fifth elastomer strips, at two edges of the seventh elastomer sheet, being conductive between front and back surfaces;

the first, second, third, and fourth ground boards have at least a width in contact with the first elastomer and the second elastomer;

the bottom sheet, the fourth ground board, the second high speed transmission line board, the third inner layer board, the third ground board, the second inner layer board, the first ground board, the first high speed transmission line board, the first inner layer board, the second ground board, and the first surface layer board are laminated, in that order, to form the multilayer board that has a two-layer offset stripline structure; and

the plural first high speed transmission lines and the plural second high speed transmission lines intersect three dimensionally in the multilayer board.

12. The connecting sheet according to claim 11, wherein the external connecting terminals are in pressurized contact with the plural second elastomer strips formed at two edges of the first surface layer board in the multilayer board, and the external connecting terminals are connected to the plural first high speed transmission lines and the plural second high speed transmission lines.

13. The connecting sheet according to any of claims 1 through 12, wherein the high speed transmission lines include differential signal lines that form a pair.